	Application No.	**Applicant(s)**
Office Action Summary	09/443,796	NEWMAN ET AL.
	Examiner	**Art Unit**
	Jason L Sherrill	2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on <u>19 November 1999</u> .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-72</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-4, 6-22, 24-40, 42-58 and 60-72</u> is/are rejected.

7)☒ Claim(s) <u>5, 23, 41 and 59</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on <u>11 January 2001</u> is: a)☒ approved b)☐ disapproved by the Examiner.

     If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____ .

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

     a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> .	6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims 1-4, 6-12, 14, 16, 18-22, 24-36, 37-40, 42-48, 50, 52-54, 60-66,68, 70, and 72 are

rejected under 35 U.S.C. 103(a) as being unpatentable over Decker et al (U.S. Patent No.

6,281,984).

For claim 1, Decker teaches a method (Figs. 1A-1B) for adjusting the representation of a

device's color gamut in color appearance space, comprising the steps of: performing forward

mapping of sample colors from a device-dependent space (YMC) to a device-independent color

appearance space (L*a*b*) to obtain forward-mapped device-independent values (106, Fig. 1A;

col. 8, line 58 - col. 10, line 65); obtaining mismatch values for perceived device-neutral (108,

110, Figs. 1A-1B; col. 10, line 66 – col. 11, line 26); adjusting each forward-mapped device-

independent value by utilizing he obtained mismatch value for each corresponding lightness

level of device-neutrals in order to obtain an adjusted forward mapping (111, 112, Fig. 1B; col.

11, line 27 - col. 12, line 27).

Decker fails to directly teach the between a forward mapped value for the device-neutral

and neutral axis of the color appearance space. However, Decker teaches the sample colors are

greyscale patches and the mapping is made between various printed greyscale values of K'

(forward mapped value for the device-neutral) and externally defined K values based on

corresponding L* values (neutral axis of the color appearance space), (col. 7, lines 9-27, col. 11,

lines 59-61). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to consider that Decker teaches the comparison between a forward mapped

value for the device neutral and neutral axis of the color appearance space. The advantage of this

mapping is to obtain an accurate adjusted forward mapping as claimed.

For claim 2, Decker teaches a method wherein the forward mapping is a forward look-up

table obtained by converting measurements of color samples from the device-dependent space

(CMYK) to device-independent color appearance space (L*a*b*) (col. 8, lines 63-66).

For claim 3, Decker discloses a method wherein mismatch values are obtained by

extracting device-independent color appearance space values for device-neutrals and generating

a one-dimensional look-up table that maps color-neutral axis for a range of lightness values (310,

312, Fig. 3; col. 11, lines 59-61; col. 12. lines 14-19).

For claim 4, Decker discloses a method wherein the device-independent values are Jab

values ("L*a*b*", col. 3, lines 14-20). It is noted that both J in Jab and L in Lab represent

lightness values.

For claim 6, Decker teaches a method wherein the adjustment of each device-independent

value comprises obtaining "a" and "b" coordinates for a device-neutral having a lightness value,

and adjusting the "a" and "b" values of the device-neutral "a" and "b" values (203, Fig. 2, col.

11, lines 50-58).

For claim 7, Decker discloses a method comprising the step of inverting the resulting adjusted forward mapping from device-independent color appearance space to device-dependent space (322, Fig. 3, col. 12, lines 19-26).

For claim 8, Decker teaches the adjusted forward-mapping and the inverted adjusted forward-mapping are inserted into a color management module (213, Fig. 2, col. 11, line 67 – col. 12, line 10).

For claim 9, Decker discloses a method wherein a computing device utilizes the color management module to perform color data management to output an image (216, 217, Fig. 2; col. 12, lines 2-43).

For claim 10, Decker teaches a method wherein the adjusting of the forward-mapped device-independent values is a full adjustment of each value (col. 7, lines 9-24).

For claim 11, Decker teaches a method wherein the adjusting of the forward-mapped device-independent values is a partial adjustment performed in either a linear or non-linear manner (col. 9, lines 9-21).

For claim 12, Decker discloses a method wherein the partial adjustment is based at least in part on chroma (a* and b*) (col. 11, 56-58).

For claim 14, Decker discloses a method wherein the partial adjustment is based at least in part on lightness (L*) (col. 9, lines 31-52).

For claim 16, Decker teaches a method wherein the partial adjustment is based at least in part on both chroma and lightness (col. 9, lines 4-8; col. 10, lines 3-6; col. 11, lines 56-58).

For claim 18, Decker teaches a method wherein the mismatch values are obtained for two device neutrals with any remaining values being obtained by interpolation (322, Fig. 3; col. 9, lines 43-52; col. 12, lines 23-27).

For claims 19-22, 24-30, 32, 34, and 36 Decker discloses a computer process steps for performing the steps as discussed in claims 1-4, 6-12, 14, 16, and 18 above.

For claims 37-40, 42-48, 50, and 52-54 Decker discloses an apparatus (Fig. 4) comprising a program memory (212) for executing the steps discussed in claims 1-4, 6-12, 14, 16, and 18 above and a processor (18) for executing the process steps stored in the program memory.

For claims 55-58, 60-66, 68, 70, and 72 Decker discloses a computer process steps for performing the steps as discussed in claims 1-4, 6-12, 14, 16, and 18 above.

3.   Claims 13, 15, 17, 31, 33, 35, 49, 51, 53, 67, 69, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Decker ('984') as applied to claims 12,14, and 16 above, and further in view of Iida (U.S. Patent No. 5,073,818).

For claims 13, 15, 17, 31, 33, 35, 49, 51, 53, 67, 69, and 71, Decker fails to teach a method wherein the partial adjustment is performed in inverse proportionality.

Iida discloses a method for converting a color images between color spaces wherein the partial adjustment is performed in inverse proportionality (Figs. 5A, 5B, 6A, 8, col. 7, line 25 – col. 8, line 20 & col. 8, line 63 – col. 9, line 25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the image converting apparatus of Decker to include the ability of Iida to perform adjustments in inverse proportionality because both teach image processing devices capable of converting images from device-dependent color

space to device-independent color space and adjusting color values of the device-independent color space accordingly. The improvement of Decker by Iida would allow for more accurate conversion of images from one color space to another.

Allowable Subject Matter

4.   Claims 5, 23, 41, and 59 and objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5, 23, 41, and 59 are allowable over the prior art of record because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the said prior art which teaches: a method or computer process wherein the adjustment of each device-independent value comprises obtaining "a" and "b" coordinates for a device neutral having a lightness value, and subtracting the "a" coordinate of the device neutral from a corresponding "a" coordinate of the device-independent value and the "b" coordinate of the device-neutral for a corresponding "b" coordinate of the device-independent value.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Wang (U.S. Patent No. 6,330,078) teaches a method and apparatus for calibrating a color printer for improved color matching between an original input document and color printed representation thereof.

b. Chan (U.S. Patent No. 6,262,812) teaches a method and apparatus for object-oriented adjustment of color attributes in a perceptually uniform manner.

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L Sherrill whose telephone number is 703-306-4053. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on 703-305-4712. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5397 for regular communications and 703-306-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

J.S. JLS

October 21, 2002

MADELEINE NGUYEN
PATENT EXAMINER

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